Call for Imaging Requests for Candidate Landing Sites for Future Mars Missions:

The Mars Exploration Program Offices at NASA Headquarters and the Jet Propulsion Laboratory invite submission of observation requests for new candidate landing sites for possible future rover missions under planning within the present NASA-ESA collaboration to conduct *insitu* science investigations and cache samples for possible return to Earth and subsequent analysis.

The goal is to gather information on candidate landing sites and develop a list of high priority locations for future Mars missions in a timely manner, mainly using instruments on the Mars Reconnaissance Orbiter (MRO) while it is still operating. Candidate sites are also to be provided to the Mars Odyssey and Mars Express teams to conduct additional imaging investigations. Proposed observation requests of landing sites requires submission of a short abstract (template available at http://marsnext.jpl.nasa.gov/ and must include specific, but brief, statements about 1) the location of the candidate landing ellipse, 2) existing data coverage, and 3) how the proposed site addresses the future mission objectives. The abstract must also specify the desired target for initial imaging by MRO instruments, and provide basic information on the ellipse location (elevation and latitude).

- Preliminary brief engineering constraints, science objectives, and sampling goals for a
 possible 2018 joint rover mission can be found in the template at
 http://marsnext.jpl.nasa.gov/.
- The preliminary scientific objectives for the possible 2018 joint rover are being defined (subject to change). It is expected that the rover would land at a geologically diverse site interpreted to have strong potential for past habitability and for preserving the physical and chemical signs of life and organic matter. The rover would 1) analyse the local geology and define the local stratigraphy at km to sub-mm scales and down to ~2 m depth; 2) evaluate the nature of past habitable environments at the landing site, and search for evidence of abiotic, or pre-biotic carbon chemistry; 3) investigate favorable geological materials for preserving biosignatures at the site and analyze them for physical or chemical signs of life; and 4) select, document, collect, and cache samples that could be returned to Earth for definitive analysis. Cached samples would be selected to address the following broad science goals in order of priority: a) critically assess evidence for life, pre-biotic chemistry, or abiotic organic matter in samples and determine their preservation potential; b) determine the magmatic, magnetic and atmospheric history in samples to constrain the mechanisms and ages for the accretion, early differentiation and thermal evolution of Mars; c) reconstruct the history of surface and near surface processes and climate change using detailed geochemical and mineralogical analyses; and d) assess potential hazards and resources for future human explorers.

An ellipse size of 25 X 20 km will be assumed for future missions, which are presently based on the MSL landing system design.

Requests for imaging of candidate landing sites can be submitted through November 30, 2011, and should be submitted via e-mail to John Grant (grantj@si.edu), Matt Golombek

(<u>mgolombek@jpl.nasa.gov</u>), and Nicolas Mangold (<u>Nicolas.Mangold@univ-nantes.fr</u>), co-chairs of the international Mars landing site steering committee appointed jointly by NASA and ESA.

Individuals are limited to proposing imaging requests for up to 3 sites/specific ellipses and are responsible for including a summary review of existing MRO and other data for their candidate sites.

After review and prioritization by the landing site steering committee a list of candidate sites will be provided to the MRO, ODY, and MEX teams for imaging. Requested data will be made available as soon as images/data products are available.

It is anticipated that a landing site workshop in support of this and prior calls for future candidate landing sites will be held during February 29 through March 2, 2012 in the Washington DC area to enable discussion of new candidate sites. It is likely that sites deemed of the highest merit will be selected for additional imaging.

Please note that this data call is an unfunded effort.

Download the imaging template at http://marsnext.jpl.nasa.gov